



# **Handheld RFID Reader Model 803**

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Owner's  
Manual

**Track and Trace Solutions**

3M Center, Building 225-4N-14

St. Paul, Minnesota 55144-1000

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*3M™ Handheld RFID Reader Model 803 Owner's Manual*

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78-8126-8363-5 Rev C

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## Safety information

Read, understand, and follow all safety information contained in these instructions prior to installation and use of the 3M™ Handheld RFID Reader Model 803. Retain these instructions for future reference.




### Intended use

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The 3M Handheld RFID Reader Model 803 is intended for use in processing 3M™ RFID Tags. These tags are used to identify items, such as books, videocassettes, files, etc., for various users.

**This device is intended for use in an indoor library environment, and has not been evaluated for other uses or locations.**

#### EXPLANATION OF SIGNAL WORD CONSEQUENCES

 <b>DANGER:</b>	Indicates a potentially hazardous situation, which, if not avoided, will result in death or serious injury and/or property damage.
 <b>WARNING:</b>	Indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury and/or property damage.
 <b>CAUTION:</b>	Indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury and/or property damage.
<b>CAUTION:</b>	Indicates a potentially hazardous situation, which, if not avoided, may result in property damage.

#### EXPLANATION OF PRODUCT SAFETY LABEL SYMBOLS

	<b>Attention: Read accompanying documentation</b>
	<b>Risk of Electric Shock</b>

### **WARNING**

#### **To reduce the risk associated with fire and explosion:**

- Do not attempt to use a damaged battery pack, charger, or power supply;
- Do not allow battery pack to come in contact with water;
- Do not disassemble, crush, or incinerate the battery pack — at the end of service life, dispose of the battery pack in accordance to federal, state and local requirements;
- Replace battery pack with Molicel MCR-1821 type battery pack only;
- Do not store the battery pack in areas that may exceed temperatures of 100°C/212°F;
- Use the charger with the supplied power supply only.

#### **To reduce the risk associated with hazardous voltage contained within the battery charger:**

- Do not use the charger or power supply if the case or cord are damaged;
- Do not use in outdoor or wet environments;
- Do not attempt to service or repair the charger or power supply — no user serviceable parts inside.

### **CAUTION**

#### **To reduce the risk associated with repetitive strain injuries from overuse of the Handheld unit:**

- Operation of the 3M™ Handheld RFID Reader may involve repeated body movements. To minimize possibility of Repetitive Stress Injury, avoid prolonged repetitive movements, rest when becoming fatigued and, when possible, alternate job functions with other people. Avoid awkward reaching for items.

#### **To reduce the risk associated with environmental contamination from the potentially hazardous chemicals within the lithium-ion battery pack:**

- At the end of service life, dispose of the battery pack in accordance with federal, state and local requirements.

#### **To reduce the risk associated with environmental contamination from circuit boards containing lead-bearing solder within the Handheld:**

- At the end of service life, dispose of the handheld unit in accordance with federal, state and local requirements.

## Important notes

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Important notes summarize best practices that can help you avoid damaging the 3M Handheld RFID Reader Model 803 (Handheld) and/or corrupting data.

### IMPORTANT NOTES!

**Be careful not to damage the Handheld.**

- DO NOT drop the Handheld.
- DO NOT leave the Handheld in locations where it might fall.
- DO NOT leave the Handheld in direct sunlight.
- DO NOT expose the Handheld to heat.
- Only use the point of the stylus to touch the various buttons and checkboxes on the screen.
- Never use a pen, pencil, or other sharp object on the display screen.

**Save all the original Handheld packing materials.**

You will need the packing materials if you return the Handheld for repair.

**Do not over tighten the antenna adjustment screw.**

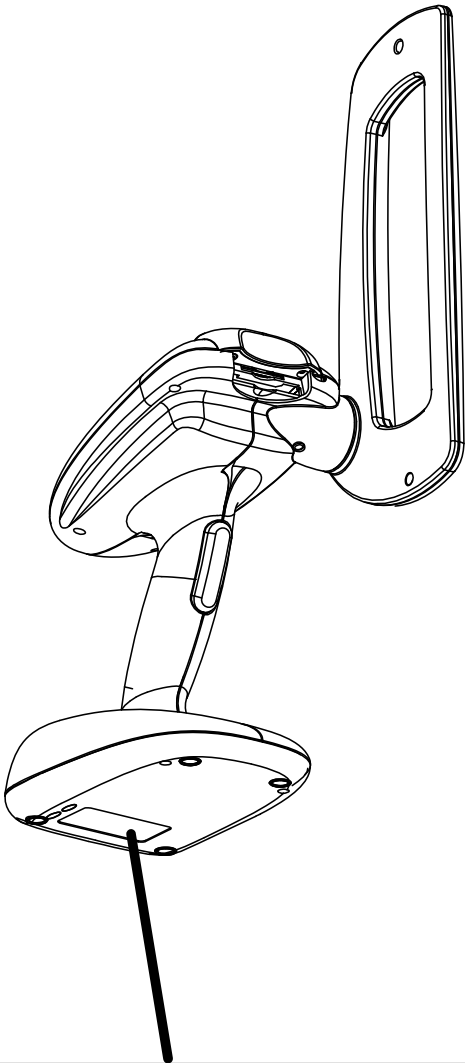
Over tightening the antenna adjustment screw may damage the Handheld.





**Always use the Change Battery function when you change the battery.**

If you do not use the **Change Battery** function when changing the battery, you may lose collected data and/or corrupt the memory card. Also, you may have to reset the Handheld.

**Always return to the Home screen before removing the memory card.**

This helps avoid corrupting data that you collected with the Handheld and saved to the memory card.



COM/STATUS	U.S. Pat. No. 6486780, U.S. Pat. No. 6232870 U.S. Pat. No. 6448886, U.S. Pat. No. 6768419 U.S. Pat. No. D470847		
	<b>Model 803</b>		
PWR	FCC ID: DGF-LSD702		
	IC: 458A-TTS702		
	<b>S/N: 803XXXXX</b>		
	3M Track & Trace Solutions St. Paul, Minnesota 55144		



## EMC, USA, and Canada compliance

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### FCC Radio Frequency Rules and Regulations

This equipment has been tested and found to comply with the limits for a Class A device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can emit radiated radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### FCC Intentional Radiator Certification

FCC ID: DGFLSD702
-------------------

This equipment contains an intentional radiator approved by the FCC under the FCC ID number shown above. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NO MODIFICATIONS. Modifications to this device shall not be made without the written consent of The 3M Company. Unauthorized modifications may void the authority granted under Federal Communications Commission Rules permitting the operation of this device.

### Industry Canada Radio Frequency Rules and Regulations

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

IC: 458A-TTS702
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Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference received, including interference that may cause undesired operation of the device.

### EMC Compliance Europe

This equipment complies with the requirements of the RATE and EMC directives.

## Japan

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同梱の電源コードは当該製品専用です。

# Getting started


The 3M Handheld RFID Reader Model 803 (Handheld) is used to read 3M RFID Tags placed in items such as books, videocassettes, files, etc. The Handheld can be used with **3M D1 RFID Tags** or **3M D8 RFID Tags**.

## IMPORTANT NOTE!

**Save all the original Handheld packing materials.** You will need the packing materials if you return the Handheld for repair.

## Using the 3M™ Handheld RFID Reader for the first time

Step 1 – Use your system software to export your data and 3M Handheld software onto a memory card.

 See your Software User Guide for instructions on exporting software to a memory card.

- 1 Install the **Handheld software** (located on the CD-ROM delivered with the Handheld) on the same computer where you installed your system software.
- 2 Export **Handheld software** onto a memory card.
  - This occurs automatically whenever you export data to a memory card.
- 3 Insert the memory card into the Handheld.
  - See [Inserting the memory card](#) on page 10.

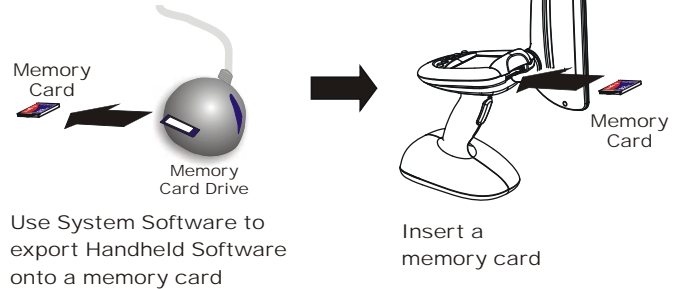
Step 2 – Charge the battery and insert it into the Handheld.

- 1 See [Charging the battery](#) on page 16.
- 2 Insert the charged battery into the Handheld.
  - The Handheld software automatically starts.

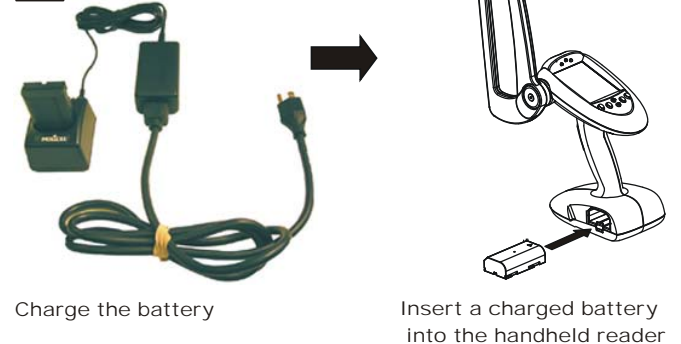
Step 3 – Set the clock

- 1 If the screen calibration screen appears, follow the instructions.
- 2 The Handheld software loads and the **Set Clock** dialog box appears.
- 3 In the **Set Clock** dialog box, set the time, date, and time zone.
- 4 Tap **OK**.
  - The Home screen for your Handheld software appears.
- 5 Refer to the Software User Guide for Staff and Admin Setup procedures and instructions on using the various software functions.

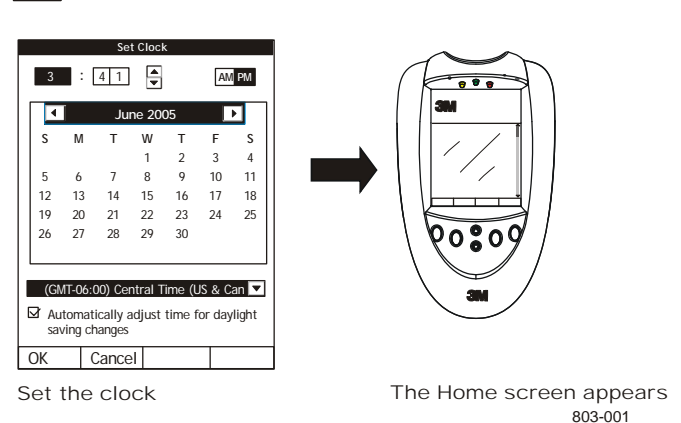
1



2



3



803-001

## Specifications

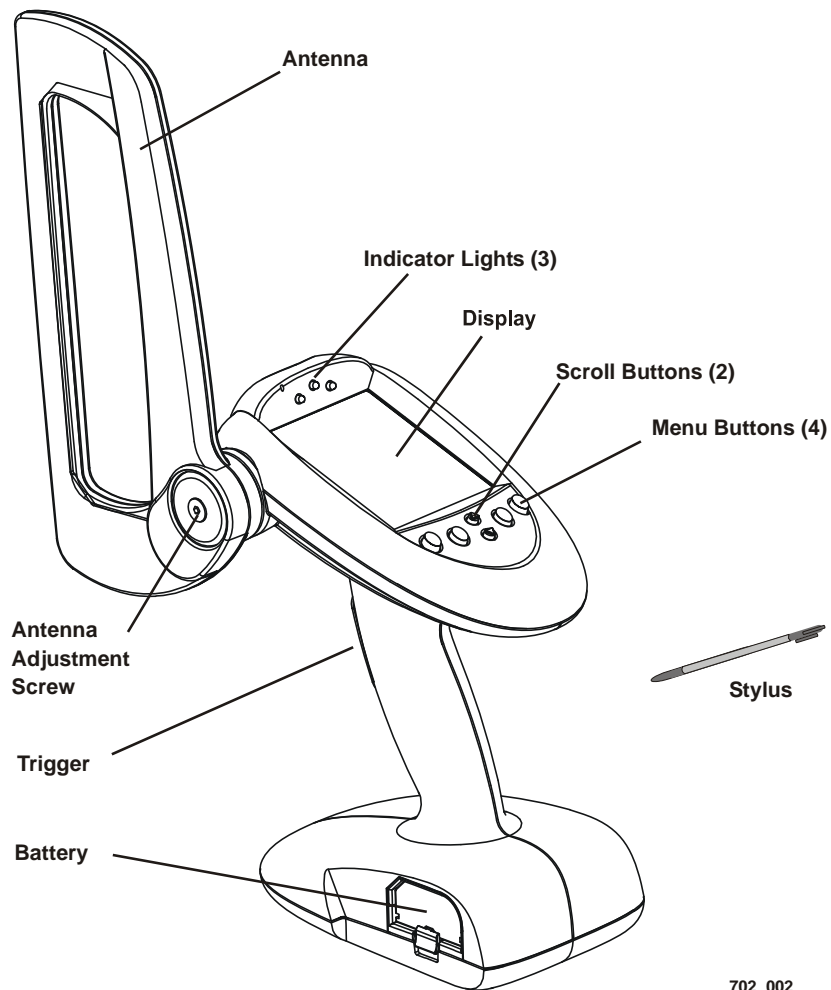
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<b>Operating Temperature</b>	Typical ambient temperature range: 50°F to 104°F (10°C to 40°C)
<b>Storage Temperature</b>	-40°F to 131°F (-40°C to 55°C)
<b>Humidity</b>	0% to 85% RAH, non-condensing
<b>Memory Card</b>	Type I or Type II CompactFlash™ card (A 64-MB memory card stores data for approximately 460,000 items.)
<b>Battery type</b>	Only use a Molicel MCR-1821 battery rated at 2400mAh or greater.
<b>Battery charger</b>	Only use a Molicel MAC-1821B battery charger.
<b>Typical charge life</b>	A fully charged battery will last for approximately three to four hours of "trigger time" (time the trigger is pressed or activated). This typically provides many hours of use before recharging is required.
<b>Typical time to fully charge a battery</b>	The battery charger will charge a fully discharged battery in approximately four hours.
<b>Battery Charger Power</b>	100-240 Vac, 1.0A, 50-60 Hz

### IMPORTANT NOTE!

**Be careful not to damage the Handheld.**

- DO NOT drop the Handheld.
- DO NOT leave the Handheld in locations where it might fall.
- DO NOT leave the Handheld in direct sunlight.
- DO NOT expose the Handheld to heat.
- Only use the point of the stylus to touch the various buttons and checkboxes on the screen.
- Never use a pen, pencil, or other sharp object on the display screen.



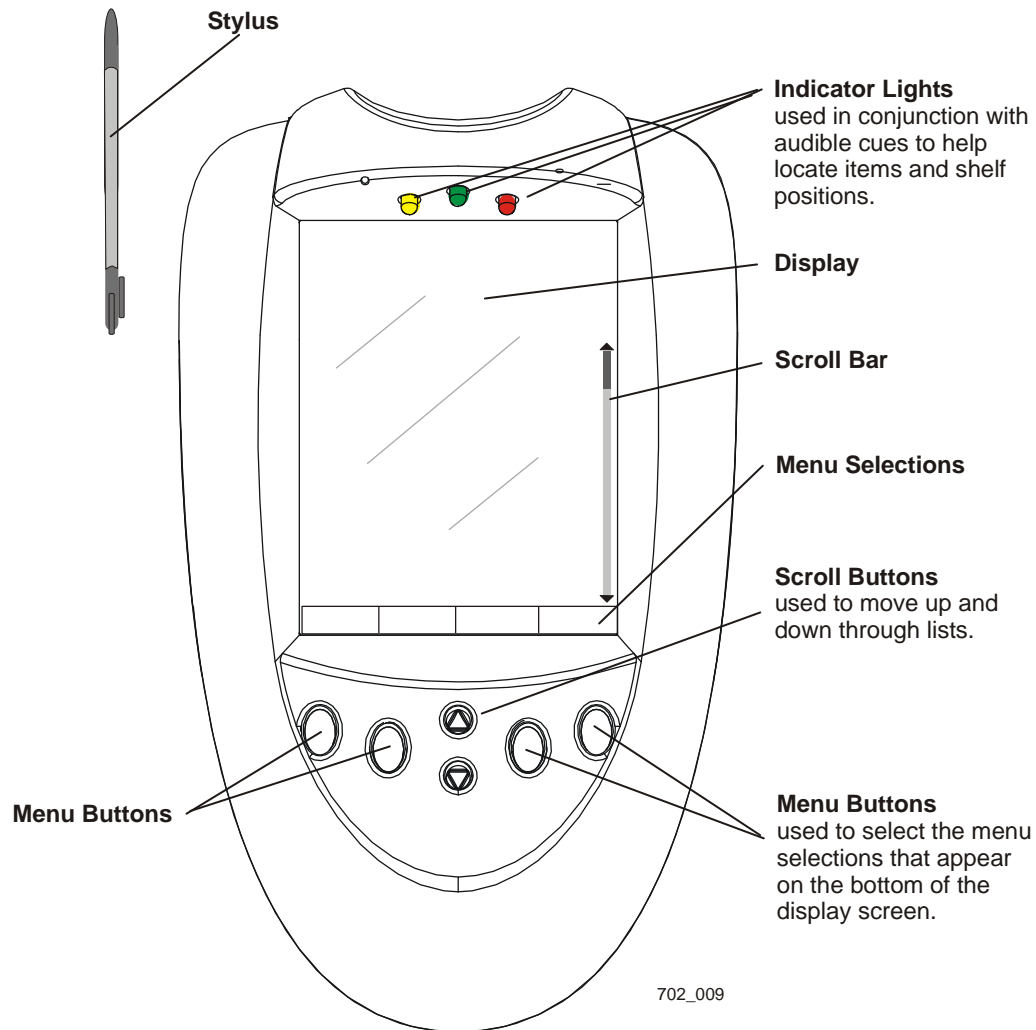
702\_002

**Figure 1: Handheld components.**

## Controls and indicators

The Handheld display includes menu selections and setup screens with various checkboxes.

- Most tasks are selected using the **menu buttons**. You can also use the **stylus** to select various Handheld functions.
- Use the **stylus** to check and uncheck the various checkboxes that appear in the setup screens.




**Figure 2: The Handheld includes a menu-driven display screen.**

## Inserting the memory card

The memory card contains the data and Handheld software required for operation.

1 - Install a pull tab on the memory card

The Handheld includes a number of pull tabs that you can attach to various memory cards. These pull tabs can make removing memory cards easier.

 For reliable operation, 3M recommends using only SanDisk memory cards and SanDisk memory-card readers.

2 - Insert the memory card

- 1 Grasp the memory card with the label side up.
- 2 Push the pin-socket end of the memory card into the **memory-card slot** until it is completely inserted.
  - Messages (such as loading the database, etc.) appear on the screen.
  - If the memory card contains a newer version of 3M software, a dialog box will ask you if you want to install the new version.

### Database Errors

The Handheld may display **No Database** or **Invalid Database** messages.

- These messages are usually the result of corrupted data on the memory card.
- If you see these messages, you may have to reformat the memory card (See [Formatting a memory card](#) on page 13.)

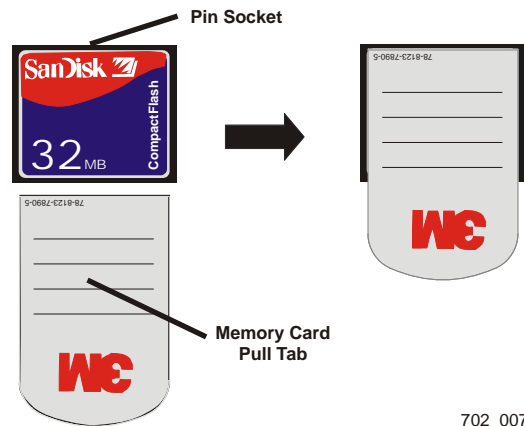


Figure 3: Attach the memory-card pull tab to the memory card.

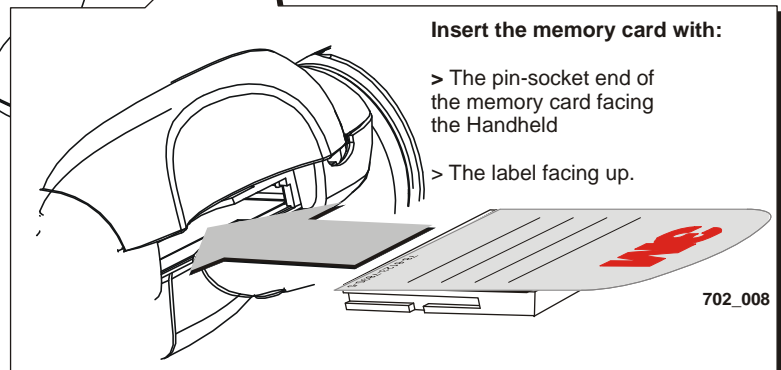
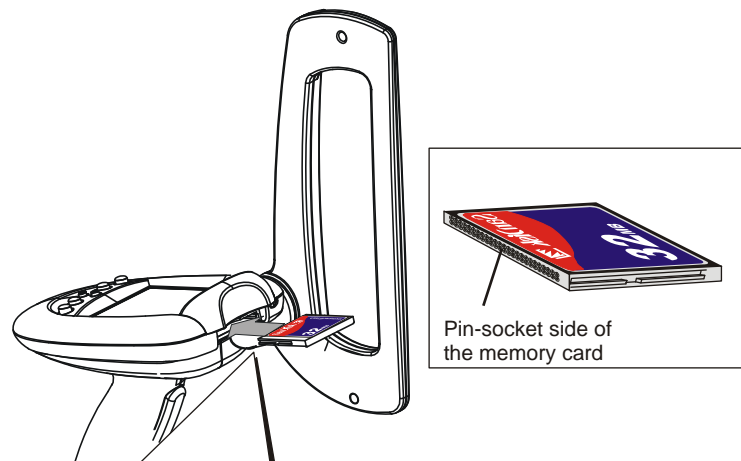


Figure 4: Insert the memory card as shown.

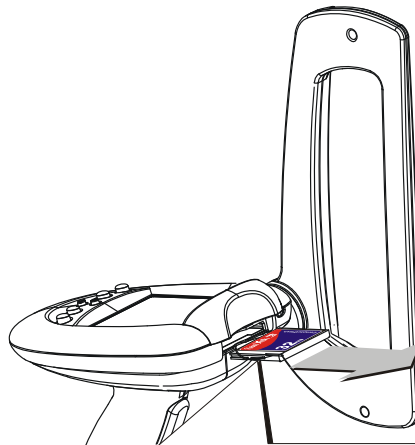
## Removing the memory card

### IMPORTANT NOTE!

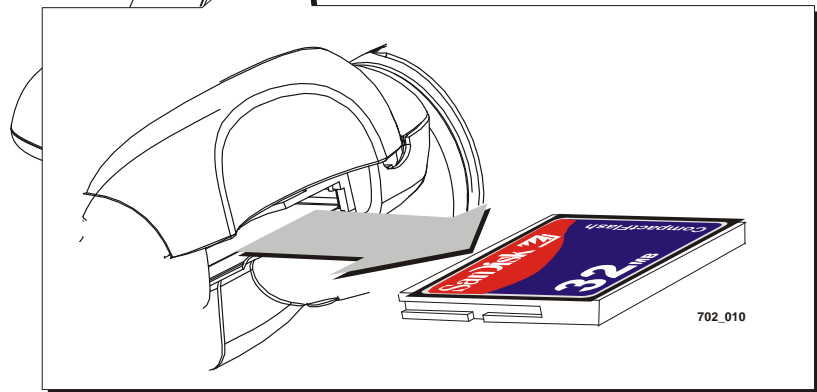
**Always return to the Home screen before removing the memory card.** This helps avoid corrupting data that you collected with the Handheld and saved to the memory card.

#### Procedure

- 1 Press **Home** to return to the Home screen.
  - This ensures that the Handheld finishes any write activities before you attempt to remove the memory card.




- 2 Grasp the memory card and pull it straight out from the Handheld.
  - To make it easier to remove a memory card, attach a memory-card pull tab to the memory card.



**Figure 5: Return to the 3M software Home screen before removing the memory card from the Handheld.**

## Resetting the Handheld

If the Handheld display locks up or stops working, perform the reset procedure described below.

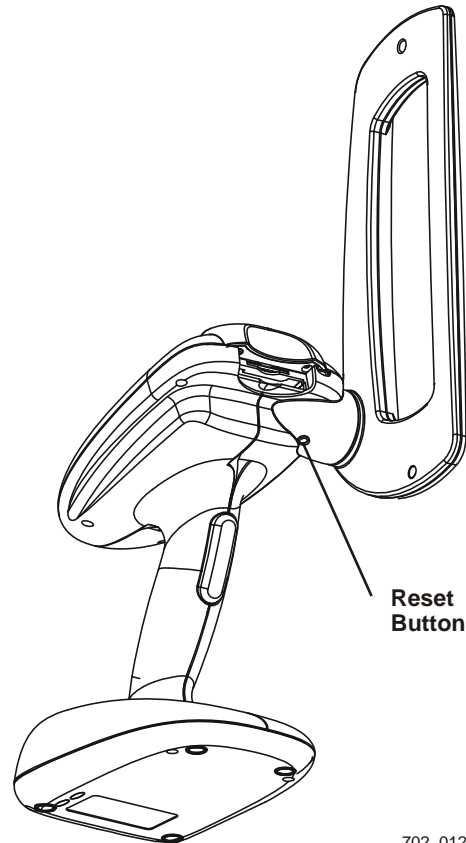
 A blank screen may be caused by a fully discharged battery.

To reset the Handheld

- 1 Insert a memory card (with 3M Handheld software on it) into the Handheld.
- 2 Press and hold the **reset button** for approximately one second.
- 3 The Handheld software loads.
- 4 The **Home** screen appears.

If pressing the reset button did not work...

- 1 Insert a memory card (with 3M Handheld software on it) into the Handheld.
- 2 Remove the battery.
- 3 Insert a **fully charged** battery.
- 4 Follow the [Using the 3M™ Handheld RFID Reader for the first time](#) procedure on page 6.



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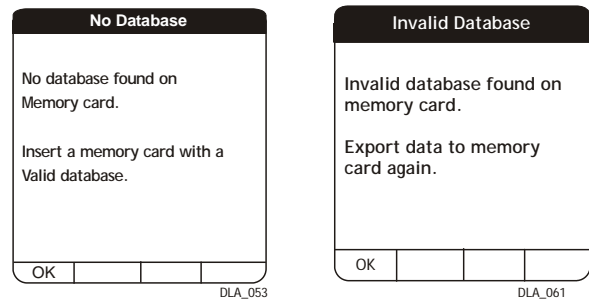
Figure 6: Handheld reset button.



## Formatting a memory card

If the Handheld displays database error messages when you insert the memory card, try reformatting the memory card.

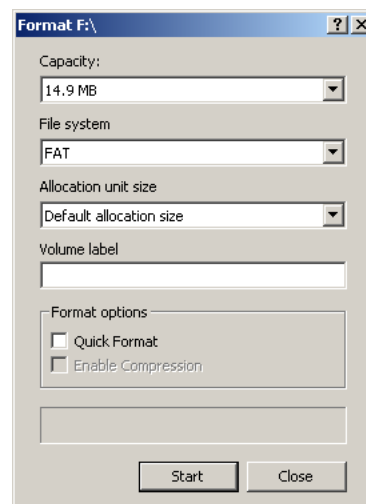
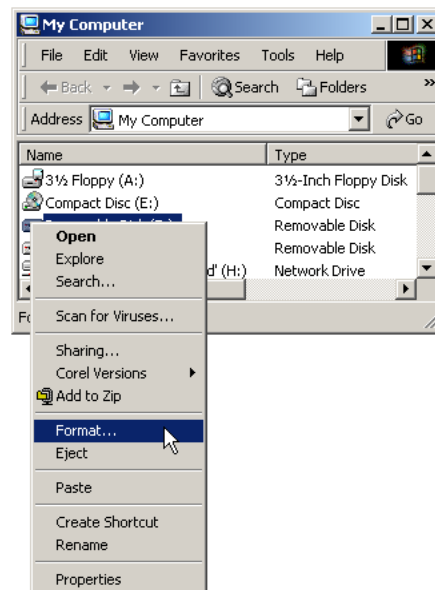
If this procedure does not work, call 3M Service. (See [Requesting service](#) on page 18.)



**Figure 7: If the Handheld displays database error messages when you insert the memory card, try reformatting the memory card.**

Using Windows to format the memory card

- 1 Double-click the **My Computer** icon on your computer's desktop.
- 2 Right click on the memory-card icon and select **Format**.
  - The **Format** dialog box appears.
  - Leave the other settings at their default state.
- 3 In the **File System** list box, select **FAT**.
- 4 Click **Start**.
- 5 After formatting is complete, use your system software to export information to the memory card.
- 6 Insert the memory card into the Handheld.
  - If the Handheld reads the memory card, the formatting was successful.
  - If the Handheld displays "No Database" or "Invalid Database" messages, call 3M Service. See [Requesting service](#) on page 18 for phone numbers.



## Adjusting the antenna

If necessary, use the **antenna adjustment tool** (shipped with the Handheld) to carefully adjust the swivel tightness of the Handheld antenna.

If the antenna is too loose

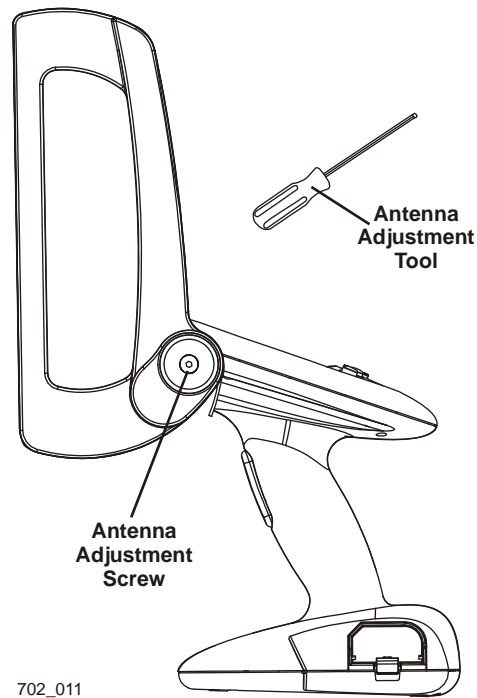
- Use the **antenna adjustment tool** to **tighten** (turn clockwise) the antenna adjustment screw slightly until the antenna swivels properly.
- Be careful to only turn the adjustment screw the minimum amount needed to tighten the Handheld antenna swivel.

If the antenna is too tight

- Use the **antenna adjustment tool** to **loosen** (turn counterclockwise) the antenna adjustment screw slightly until the antenna swivels properly.

### IMPORTANT NOTE!

**Do not over tighten the antenna adjustment screw.** Over tightening the antenna adjustment screw may damage the Handheld.



**Figure 8: Use the antenna adjustment tool to adjust the antenna.**

## Cleaning the Handheld

The Handheld may need occasional cleaning.

- Gently rub the Handheld with a soft cloth dampened with a mild cleaning solution. Make sure that no liquids enter the Handheld case.
- DO NOT spray cleaning solution directly on the Handheld.

## Storing the Handheld

During storage, the Handheld continues to use a small amount of battery power. Over time (approximately 2-3 days), the battery can lose its charge.

**If you plan to store the Handheld for more than a day**

Using the **Change Battery** function, remove the battery from the Handheld.

- If you store the Handheld for more than 10 days without a battery, you may have to reset the date and time.

For instructions on setting the date and time, see

[Using the 3M™ Handheld RFID Reader for the first time](#) on page 6.

### IMPORTANT NOTE!

**Always use the Change Battery function when you remove the battery.**


If you do not use the **Change Battery** function when removing the battery, you may lose collected data and/or corrupt the memory card.

# Battery Management

The Handheld is powered by a rechargeable lithium-ion battery that must be periodically charged.

## Battery charging guidelines

- Batteries may be charged overnight or for extended periods.
- Batteries do not have to be discharged before recharging them.
- Batteries may be plugged in for any amount of time to partially recharge the battery.

 Always keep one of the two batteries fully charged in the battery charger. At the end of each workday, you may want to replace the battery with a fully charged battery and charge the other battery.

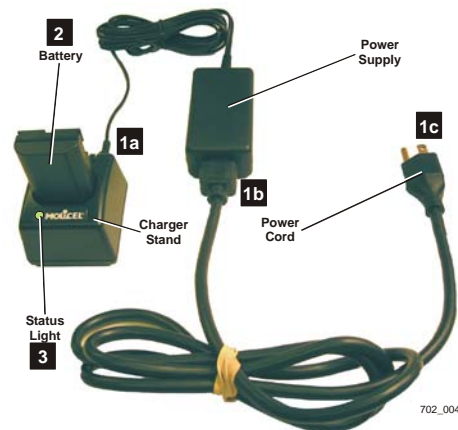


Figure 9: Battery charging system.

## Battery use

### Typical charge life

A fully charged battery typically provides several hours of use before recharging is needed.

### Checking the battery charge

The upper right hand corner of each screen includes a graphical battery charge indicator (battery gauge).

- The battery gauge shows how much of a charge remains in the battery. (See Figure 10.)
- If the battery gauge shows less than 50% charge remaining, you may want to replace the battery with a fully charged battery and place the other battery in the charger.

### Low battery warning messages

- The Handheld warns you when battery power is low. You should replace the battery if a “battery low” message appears.
- Handheld software protects you from totally losing power by requiring that the battery be changed or recharged when the charge drops to a very low level.

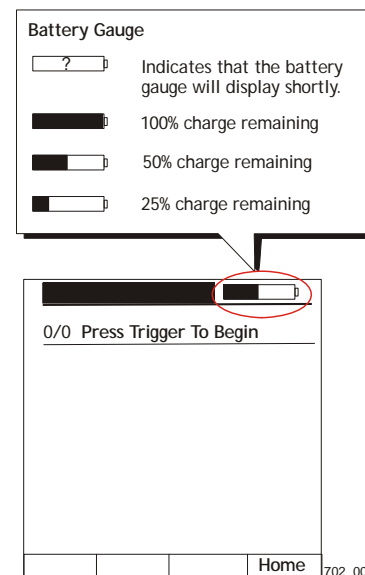


Figure 10: The battery gauge shows how much charge remains in the battery.

## Sleep mode

Once the battery is charged and installed, the Handheld is ready to use at all times.

- To conserve battery charge, the Handheld will enter “**sleep mode**” after approximately two (2) minutes of no activity. During sleep mode, the screen will go blank.

**To bring the Handheld out of sleep mode**, press the trigger.

- The display will revert to the last function that was used.

## Charging the battery

Always keep one of the two batteries fully charged in the battery charger.

- The typical charge time is four hours.

To charge a battery

- 1 Connect the battery charger.
  - a Connect the **power supply output** to the charger stand.
  - b Plug one end of the **power cord** into the power supply.
  - c Plug the other end of the **power cord** into an AC power source: (100-240 Vac, 1.0A, 50-60 Hz).
    - The **status light** is **Green** when no battery is inserted into the charger stand.
- 2 Insert a single battery into the battery charger stand.
  - Ensure that the two gold contacts on the battery are placed face down into the charger stand.
  - The **status light** will change to **Red** to indicate that the battery is charging.
- 3 When the battery is fully charged, the status light changes from **Red** to **Green**.

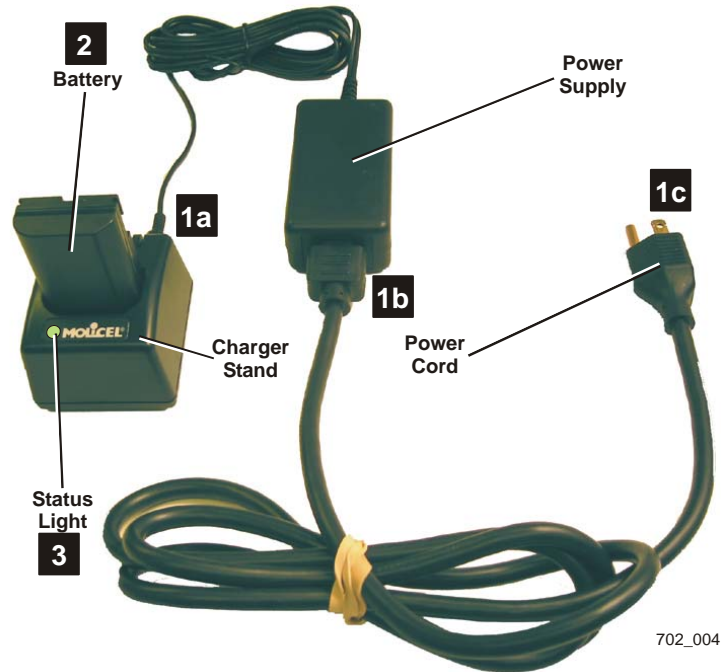


Figure 11: Connect the battery charger as shown.

Battery Charger Status Light	
Red	indicates that the battery is being charged.
Green	indicates that the battery is charged or that there is no battery inserted in the charger stand.



### WARNING

#### To reduce the risk associated with fire and explosion:

- Do not attempt to use a damaged battery pack, charger, or power supply;
- Do not allow battery pack to come in contact with water;
- Do not disassemble, crush, or incinerate the battery pack — at the end of service life, dispose of the battery pack in accordance to federal, state and local requirements;
- Replace battery pack with Molitel MCR-1821 type battery pack only;
- Do not store the battery pack in areas that may exceed temperatures of 100°C/212°F;
- Use the charger with the supplied power supply only.


#### To reduce the risk associated with hazardous voltage contained within the battery charger:

- Do not use the charger or power supply if the case or cord are damaged;
- Do not use in outdoor or wet environments;
- Do not attempt to service or repair the charger or power supply — no user serviceable parts inside.

# Replacing the battery

## Removing the battery

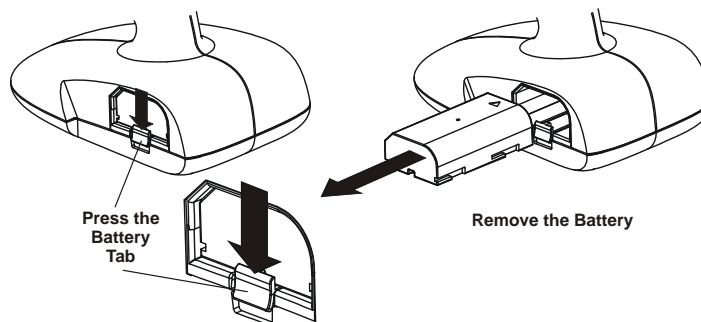
- 1 From the Handheld software's **Home** menu, select **Change Battery**.

 **Important Note!** - If you do not use the **Change Battery** function, you may lose collected data and/or corrupt the memory card. Also, you may have to reset the Handheld.

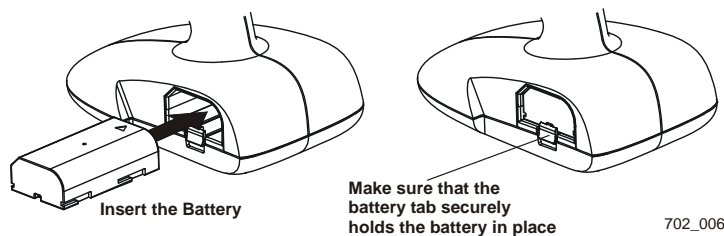
- 2 When the screen goes blank, it is safe to remove the battery.
- 3 Push the **battery tab** down, away from the battery.
- 4 Slide the battery out of the battery holder.

- 1 Select "Change Battery" from the main screen

- 2 Remove the old battery



- 3 Insert the new battery



**Figure 12: Before removing a battery, select Change Battery.**



## WARNING

### To reduce the risk associated with fire and explosion:

- Do not attempt to use a damaged battery pack, charger, or power supply;
- Do not allow battery pack to come in contact with water;
- Do not disassemble, crush, or incinerate the battery pack — at the end of service life, dispose of the battery pack in accordance to federal, state and local requirements;
- Replace battery pack with Molicel MCR-1821 type battery pack only;
- Do not store the battery pack in areas that may exceed temperatures of 100°C/212°F;
- Use the charger with the supplied power supply only.

### To reduce the risk associated with hazardous voltage contained within the battery charger:

- Do not use the charger or power supply if the case or cord are damaged;
- Do not use in outdoor or wet environments;
- Do not attempt to service or repair the charger or power supply — no user serviceable parts inside.

## Requesting service

Before you call

Before you call 3M Service, have the following information available:

- Have the Handheld near the phone.
- Write down the Handheld's serial number (located on the bottom of the Handheld).
- Be ready to describe the problem and any error messages in detail.
- Write down the software version. (From the Handheld's **Home** screen, select **About** to display the software version number.)

Return for repair

If repairs are necessary, call 3M Service and the 3M-service representative will explain how to package and return the Handheld.

- Save all the original Handheld packing materials so you can properly pack the unit if you need to return it for repair.

## 3M Service phone numbers

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### For software support

In the United States

Library Systems: 1-800-328-0067 (Option 1)

3M RFID Tracking System: 1-800-944-3512 (Option 2)

In Canada

Library Systems and 3M RFID Tracking System (English): 1-800-561-5115 Ext 3770

Library Systems and 3M RFID Tracking System (Français): 1-800-361-4488 Ext 4766

In other countries

Call your local 3M office.

### For service

In the United States

Library Systems: 1-800-328-0067 (Option 1)

3M RFID Tracking System: 1-800-944-3512 (Option 2)

In Canada

Library Systems and 3M RFID Tracking System (English): 1-800-268-6235

Library Systems and 3M RFID Tracking System (Français): 1-800-567-3193

In other countries

Call your local 3M office.

### To order parts

See [Ordering replacement parts](#) on page 19 for part numbers and phone numbers.

## Ordering replacement parts

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The following consumable parts may be ordered separately:

Stock Number	Description
78-8123-7939-0	Battery
78-8123-7940-8	Battery charger assembly
26-1017-2792-8	Antenna-adjustment tool
78-8123-7890-5	Memory-card removal tab
26-1017-1145-0	64-MB memory card
26-1017-2793-6	Replacement stylus four pack

### To order parts

Call the following phone numbers to order the parts listed above.

In the United States

Library Systems: 1-800-328-0067 (Option 2)

3M RFID Tracking System: 1-800-944-3512 (Option 3)

In Canada

Library Systems and 3M RFID Tracking System (English/Français): 1-800-410-6880

In other countries

Call your local 3M office.